



September 25, 2019

MEMORANDUM

To: Members of the Board of Education

From: Michael J. Martirano, Ed.D.
Superintendent

Re: Boundary Line Transportation Cost Estimate

The purpose of this memorandum is to provide you with clarification of estimated transportation costs for the boundary line adjustment plan.

During the September 23, 2019, Howard County Council and the Board of Education Quarterly Meeting, Mr. David Ramsay, Director of Transportation, indicated three primary factors influencing costs: (1) route mileage to the proposed schools, (2) providing bus service to twelfth graders choosing to remain at their current high school, and (3) transporting students currently not eligible for bus service.

During the conversation, Mr. Ramsay reviewed the methodology and how factors such as fluctuations in fuel and contract prices can influence costs. He further shared that to formulate a firm cost estimate to transport twelfth graders, parents need to inform the school system of their need for bus service. The estimate provided below accounts for 344 high school students requiring bus service. The assumption used to estimate the one-year senior transportation cost accounts for approximately half of the anticipated twelfth graders who stay at their current school, requiring transportation. The calculation is: 2,750 high school students multiplied by 25% (approximate twelfth grade class), multiplied by 50% (half of the senior class needing transportation). If the Board decides to make an exemption for eleventh grade students, the same chart in Section 2 provides the cost estimate.

1. Route Mileage

The route mileage was calculated by determining the mileage from the center of each planning polygon to the existing school and then to the proposed school. The difference of these mileages were then calculated to determine the increased or decreased distance.

In addition to the mileage, the number of trips impacted by the boundary line adjustment were then identified so that the mileage differential could be applied.

Level	Trips	Plan Poly Moves	Current Distance	Superintendent Distance	Difference	% Change	Avg Distance
Elementary	89	58	1319	1413	94	6.68%	1.99
Middle	54	54	1814	1889	76	4.00%	1.73
High	74	85	2272	2435	163	6.70%	2.38
Total	217	197	5404	5737	333	5.79%	2.03

Since a component of the school bus contract includes a mileage rate, the average for all general education contracts was calculated and applied to the estimate. It should be noted that the mileage rate may change due to fluctuations in fuel prices. A range is provided in the chart.

Trips	Avg Distance	Avg Cost Mile	Total
217	2.03	\$ 2.40	\$ 380,978
217	2.03	\$ 2.44	\$ 387,328
217	2.03	\$ 2.50	\$ 396,852

2. Twelfth Grade Students Remaining at Current High School

Provided below is a range of costs for high school students choosing to remain at the current high school. For estimation purposes, if 2,750 high school students are redistricted, and 50% of the twelfth graders require bus service, the cost is \$544,000.

Riders @ 25% for Twelfth Grade

Est. HS Students Redistricted	100% Riders (one grade)	90% Riders (one grade)	80% Riders (one grade)	70% Riders (one grade)	60% Riders (one grade)	50% Riders (one grade)	40% Riders (one grade)	30% Riders (one grade)	20% Riders (one grade)	10% Riders (one grade)
3000	750	675	600	525	450	375	300	225	150	75
2750	688	619	550	481	413	344	275	206	138	69
2500	625	563	500	438	375	313	250	188	125	63
2250	563	506	450	394	338	281	225	169	113	56
2000	500	450	400	350	300	250	200	150	100	50
1750	438	394	350	306	263	219	175	131	88	44
1500	375	338	300	263	225	188	150	113	75	38
1250	313	281	250	219	188	156	125	94	63	31
1000	250	225	200	175	150	125	100	75	50	25
750	188	169	150	131	113	94	75	56	38	19
500	125	113	100	88	75	63	50	38	25	13
250	63	56	50	44	38	31	25	19	13	6

Number of Buses (44 students per bus)

Est. HS Students Redistricted	100% Riders (one grade)	90% Riders (one grade)	80% Riders (one grade)	70% Riders (one grade)	60% Riders (one grade)	50% Riders (one grade)	40% Riders (one grade)	30% Riders (one grade)	20% Riders (one grade)	10% Riders (one grade)
3000	18	16	14	12	11	9	7	6	4	2
2750	16	15	13	11	10	8	7	5	4	2
2500	15	13	12	10	9	8	6	5	3	2
2250	13	12	11	9	8	7	6	4	3	2
2000	12	11	10	8	7	6	5	4	3	2
1750	10	9	8	7	6	5	4	3	2	1
1500	9	8	7	6	6	5	4	3	2	1
1250	8	7	6	5	5	4	3	3	2	1
1000	6	6	5	4	4	3	3	2	2	1
750	5	4	4	3	3	3	2	2	1	1
500	3	3	3	2	2	2	2	1	1	1
250	2	2	2	1	1	1	1	1	1	1

Bus Contract @ \$68,000 per Bus

Est. HS Students Redistricted	100% Riders (one grade)	90% Riders (one grade)	80% Riders (one grade)	70% Riders (one grade)	60% Riders (one grade)	50% Riders (one grade)	40% Riders (one grade)	30% Riders (one grade)	20% Riders (one grade)	10% Riders (one grade)
3000	1,224,000	1,088,000	952,000	816,000	748,000	612,000	476,000	408,000	272,000	136,000
2750	1,088,000	1,020,000	884,000	748,000	680,000	544,000	476,000	340,000	272,000	136,000
2500	1,020,000	884,000	816,000	680,000	612,000	544,000	408,000	340,000	204,000	136,000
2250	884,000	816,000	748,000	612,000	544,000	476,000	408,000	272,000	204,000	136,000
2000	816,000	748,000	680,000	544,000	476,000	408,000	340,000	272,000	204,000	136,000
1750	680,000	612,000	544,000	476,000	408,000	340,000	272,000	204,000	136,000	68,000
1500	612,000	544,000	476,000	408,000	408,000	340,000	272,000	204,000	136,000	68,000
1250	544,000	476,000	408,000	340,000	340,000	272,000	204,000	204,000	136,000	68,000
1000	408,000	408,000	340,000	272,000	272,000	204,000	204,000	136,000	136,000	68,000
750	340,000	272,000	272,000	204,000	204,000	204,000	136,000	136,000	68,000	68,000
500	204,000	204,000	204,000	136,000	136,000	136,000	136,000	68,000	68,000	68,000
250	136,000	136,000	136,000	68,000	68,000	68,000	68,000	68,000	68,000	68,000

3. Walkers Requiring Bus Service

In the proposed plan, there are approximately 560 students who currently do not receive bus service, but will require service to their new school. It is estimated that three new contracts would be needed to support a portion of non-transported students. In addition to the three new

contracts, contracts to support the twelfth graders could be leveraged to supplement the remaining reassigned walkers. At \$68,000 per bus, the estimated cost for the three new contracts is \$204,000 (twelfth grade contract cost is provided in section 2).

Schools	Students SY 18- 19	Trips
Bryant Woods to Longfellow	85	2
Cradlerock to Atholton	70	2
Longfellow to Bryant Woods	16	1
Stevens Forest to Thunder Hill	102	2
Swansfield to Longfellow	36	1
Thunder Hill to Talbott Springs	120	3
Harpers Choice to Wilde Lake	22	1
Wilde Lake to Harpers Choice	17	1
Long Reach to Oakland Mills	10	1
Mt. Hebron to Marriott's Ridge	82	2
Total	560	16

Total Estimated Cost

Route Mileage (@2.44 per mile)	\$387,328
12 th Grade Students (2750@50%)	\$544,000
Walkers	\$204,000
Total Est. Cost	\$1,135,328

All costs are estimates and subject to bid solicitation responses and changes in fuel costs.

If you have any questions, please contact David Ramsay, Director, Pupil Transportation Office.

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Board of Education Office